

Title (en)

Filter element incorporating a breakable capsule, method of manufacturing a cigarette having a filter element incorporating a breakable capsule and apparatus for manufacturing the cigarette having a filter element incorporating a breakable capsule

Title (de)

Filterelement mit einer zerbrechlichen Kapsel, Verfahren zur Herstellung einer Zigarette mit einem Filterelement mit einer zerbrechlichen Kapsel und Vorrichtung zur Herstellung der Zigarette mit einem Filterelement mit einer zerbrechlichen Kapsel

Title (fr)

Élément filtrant intégrant une capsule cassable, procédé de fabrication d'une cigarette dotée d'un élément filtrant intégrant une capsule cassable et appareil pour fabriquer une cigarette dotée d'un élément filtrant intégrant une capsule cassable

Publication

EP 2554060 A1 20130206 (EN)

Application

EP 11176172 A 20110801

Priority

EP 11176172 A 20110801

Abstract (en)

The present invention is directed to a filter, comprising a tow material comprising at least one cavity, wherein the at least one cavity holds at least one capsule, wherein a shape of the at least one cavity comprised in the tow material is complementary to an outer shape of the at least one capsule, and wherein the tow material comprises at least two segments of tow material surrounding the at least one capsule, and filter paper placed on an outer surface of the tow material such that the filter paper is capable of holding together the at least two segments of the tow material and the at least one capsule.

IPC 8 full level

A24D 3/04 (2006.01); **A24D 3/02** (2006.01)

CPC (source: EP US)

A24D 3/0216 (2013.01 - EP US); **A24D 3/0225** (2013.01 - EP); **A24D 3/048** (2013.01 - EP US)

Citation (applicant)

- US 2002166563 A1 20021114 - JUPE RICHARD [US], et al
- US 2002020420 A1 20020221 - XUE LIXIN LUKE [US], et al
- US 4941486 A 19900717 - DUBE MICHAEL F [US], et al
- US 4862905 A 19890905 - GREEN JR CARL C [US], et al
- US 3972335 A 19760803 - TIGGELBECK DONALD DAVID, et al
- US 4082098 A 19780404 - OWENS JR WILLIAM F
- US 4729391 A 19880308 - WOODS DONNA K [US], et al
- US 5012829 A 19910507 - THESING RICHARD A [US], et al
- US 4677995 A 19870707 - KALLIANOS ANDREW G [US], et al
- US 4848375 A 19890718 - PATRON GREGORIO I [US], et al
- US 3297038 A 19670110 - FREDDY HOMBURGER
- US 3339557 A 19670905 - KARALUS LEW W
- US 3420242 A 19690107 - BOUKAIR MOE N
- US 3508558 A 19700428 - SEYBURN BERNARD M
- US 3513859 A 19700526 - CARTY MARGARET F
- US 3596665 A 19710803 - LINDGARD KNUD
- US 3669128 A 19720613 - COHEN JOSEPH H
- US 4126141 A 19781121 - GROSSMAN HAROLD
- US 3339558 A 19670905 - WATERBURY NELSON J [US]
- US 3366121 A 19680130 - CARTY MARGARET F
- US 3390686 A 19680702 - IRBY JR RICHARD M, et al
- US 3428049 A 19690218 - LEAKE PRESTON H, et al
- US 3547130 A 19701215 - HARLOW EDWARD S, et al
- US 3575180 A 19710420 - CARTY MARGARET F
- US 3602231 A 19710831 - DOCK MORTIMER RUSSELL
- US 3625228 A 19711207 - DOCK MORTIMER RUSSELL
- US 3635226 A 19720118 - HORSEWELL HENRY GEORGE, et al
- US 3685521 A 19720822 - DOCK MORTIMER RUSSELL
- US 3916914 A 19751104 - BROOKS GEOFFREY O, et al
- US 3991773 A 19761116 - WALKER ERIC E
- US 4889144 A 19891226 - TATENO ATSUSHI [JP], et al
- WO 03009711 A1 20030206 - KIM JINHEE [KR]
- US 2003098033 A1 20030529 - MACADAM KEVIN G [GB], et al
- US 4865056 A 19890912 - TAMAOKI AKIMICHI [JP], et al
- US 5331981 A 19940726 - TAMAOKI AKIMICHI [JP], et al
- US 3308600 A 19670314 - OTTO ERDMANN, et al
- US 4281670 A 19810804 - HEITMANN UWE, et al
- US 4280187 A 19810721 - REULAND JOACHIM, et al
- US 6229115 B1 20010508 - VOSS HELMUT [DE], et al
- US 5220930 A 19930622 - GENTRY JEFFERY S [US]
- US 30364802 A 20021125
- US 32441802 A 20021220
- US 44029003 A 20030516
- US 32483602 A 20021220
- US 44029003 A 20030516
- US 4046063 A 19770906 - BERGER RICHARD M
- US 4064791 A 19771227 - BERGER RICHARD M
- US 4075936 A 19780228 - BERGER RICHARD M

- US 4357950 A 19821109 - BERGER RICHARD M
- US 4508525 A 19850402 - BERGER RICHARD M [US]
- "Tobacco Production, Chemistry and Technology", 1999
- LEFFINGWELL ET AL.: "Tobacco Flavoring for Smoking Products", 1972, R.J. REYNOLDS TOBACCO COMPANY
- BORSCHKE, REC. ADV. TOB. SCI., vol. 19, 1993, pages 47 - 70
- "Tobacco Encyclopedia", 1984, pages: 44 - 45
- BROWNE: "The Design of Cigarettes", 1990, pages: 43
- "Tobacco Production, Chemistry and Technology", 1999, pages: 346
- GUTCHO: "Tobacco Flavoring Substances and Methods", 1972, NOYES DATA CORP.
- LEFFINGWELL ET AL., TOBACCO FLAVORING FOR SMOKING PRODUCTS, 1972

Citation (search report)

- [X] WO 2011086751 A1 20110721 - JAPAN TOBACCO INC [JP], et al
- [A] US 2009235941 A1 20090924 - CHIDA MASAHIRO [JP], et al
- [A] WO 2006117697 A1 20061109 - PHILIP MORRIS PROD [CH]
- [A] US 2004261807 A1 20041230 - DUBE MICHAEL FRANCIS [US], et al
- [A] WO 2010003899 A1 20100114 - BRITISH AMERICAN TOBACCO CO [GB], et al
- [A] GB 1133885 A 19681120 - FREDDY HOMBURGER
- [A] US 3575180 A 19710420 - CARTY MARGARET F

Cited by

CN105361242A; RU2719188C1; WO2021143150A1; US11178907B2; WO2018154006A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 2554060 A1 20130206; WO 2013017624 A1 20130207

DOCDB simple family (application)

EP 11176172 A 20110801; EP 2012065043 W 20120801